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Mother's Perceptions of Their Personal Impact on Infant Language Development

An Honors College Project Presented to
the Faculty of the Undergraduate
College of Health and Behavioral Sciences
James Madison University

by Miranda Leigh Steinbeck

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Accepted by the faculty of the Department of Communication Sciences and Disorders, James Madison University,
in partial fulfillment of the requirements for the Honors College.

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PUBLIC PRESENTATION

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full, at Honors Symposium on 4/21/17.

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Abstract

During the early months of a child's language development, their ability to perceive and process language is very fluid and the language input they receive can have a large impact on their language later in life. From the beginning, children need to be able to differentiate the sounds of speech from the rest of the sounds that occur in their environment (Golinkoff, Can, Soderstrom, Hirsh-Pasek, 2015). In other words, children are exposed to the different sounds in their environment and they begin to pick up on the speech sounds, such as conversation-like interactions, with their parents (Golinkoff et al., 2015). Hart and Risley (1995) found that there were differences in the amount of interaction parents have with their children correlated with socioeconomic status (SES) groups. Researchers have identified that the more interaction that children have with their families, the greater their vocabulary will grow (Golinkoff et al., 2015). The results showed no significant difference between the low SES mothers and the mid SES mothers.

Background

The language development of a child is a continuous process that starts from the day they are born and continues throughout their lifetime. Each child develops language in a very individual manner. From their parents to the TV in the background, children are constantly exposed to language. Having an early delay in language development could lead to detrimental implications on their language later in life. These implications may include learning and behavioral problems that can affect literacy, education, and everyday life (McQuiston & Kloczko, 2011). In a study conducted by Rescorla (2009), she followed toddlers that were identified as late talkers at 24 months were followed until they were 17 years of age and compared them to their typically developing peers. On average the children who were identified as late talkers scored average on all of their tests, but still had significantly lower scores compared to their typically developing peers (Rescorla, 2009). This study was replicated and shows that having any type of delay in language can cause gaps between peers to grow significantly.

In 1995, Betty Hart and Todd Risley conducted a lengthy study that focused around the “circumstances around early language learning” (Bloom, 1995). They started with the vocabularies of 42 children at one year old and observed their vocabulary up until they were three years old. They found that the differences were related to SES. It is important to note that all these children had the same experiences with language because they heard parent interactions and conversations being had. It was their economic advantage and the frequency of experiences with words that lead to their variance in word learning and vocabulary growth. Hart and Risley stated, “children born into homes with fewer economic resources have fewer of these experiences...the consequence is that they learn fewer words and acquire a vocabulary of words

more slowly” (Bloom, 1995). Family life was very important to their study. The characteristics of family life were a factor when they looked at the children for an 8-month period. After extrapolating their data to what a year would look like, the children from fewer economic resources were exposed to about 250,000 words while the children from middle and upper economic classes were exposed to around 4 million words. They found a thirty million word gap between infants and four years old between the professional versus the children living in poverty. (70-71).

Since the groundbreaking work of Hart and Risley (1995), it has been clear that the child's environment is a major factor in language development. One of the biggest environmental factors that effect a child's language development is the interaction between the parent and the child (Suskind, Leffel, Graf, Hernandez, Gunderson, Sapolich...Levine, 2015) a relationship termed the parent-child dyad. The way parents view themselves, and child development in general, can determine how they approach interacting with their child and the manner they use when interacting with them (Rowe 2008).

Another environmental factor that could potentially have an impact on a child's language development is socioeconomic status or SES (see Hart and Risley above). In the study conducted by Fernald et al. (2013), the vocabulary and language efficacy of high and low socioeconomic status (SES) children were compared to see if there were any gaps in vocabulary development. There was a noticeable gap between these two groups of children at 18 months, as well as a 6-month gap between the two at 24 months (Weisleder & Fernald, 2013). When specifically looking into the parent-child dyad, Rowe (2008) replicated previous findings that linked SES and child-directed speech as predictors for the child's language development later on. The study found that parents who used not only “more talk”, but also use “more diverse and complex talk,

and limited the use of directive utterances” had children whose vocabulary was larger and more diverse (Rowe 2008, pg.199). These parents are using forms of infant-directed speech that have shown effective in developing a child's language in the early months of their development (Ma et al, 2011, Golinkoff et al., 2015).

Suskind et al. (2015), focused on families that came from low SES backgrounds and found that most parents of low SES either do not believe that they have an impact on their child's language development, or do not have any general knowledge about language development (Suskind et al., 2015). When parents were presented with a simple intervention, the study documented an increase in the knowledge of the parents and the amount of interactions they were having with their children (Suskind et al., 2015). The gap in language development that forms between low SES and high SES families, will continue to grow over the child's lifetime and the discrepancies in the home environment is one of the areas that can be targeted in interventions (Suskind et al., 2015).

All of these studies have focused on parents with older children, usually toddlers and preschoolers. The gap in the research lies within the population of parents and their younger infants. This project will survey these parents and their perspectives on how they perceive their roles in their children's language development. It will also explore whether or not the parents views are impacted by their socioeconomic status. I hypothesize that families identified in the low socioeconomic status group will exhibit behaviors and attitudes that indicate doubt of their impact on their children's language development.

Design and Methods

Participants and Procedures

The participants for this study are the mothers who are attending their 6-month well baby checkups at the pediatrician offices in the Shenendoah Valley. They will be recruited by the nurse practitioners and if they agree to participate, they will be asked to fill out a brief questionnaire. Over 80 questionnaires have been distributed and we currently have 24 completed. The mother's come from various socioeconomic statuses that will be identified through the survey. The sample size of $n=24$, where n is the number of mothers who have answered the survey and have returned them to the physician.

The design for this project is a quantitative study that will use a survey to collect information from the participants. This project stems from a larger study that focuses on whether a simple intervention can change parent's perception of their impact on language development. A survey is the most direct way to obtain this information, since our main goal is to identify the parents' perceptions about language development in children. The research site includes a doctor's offices from the surrounding Harrisonburg area that distributed the surveys to the parents of their patients.

This project took the surveys from the 6-month checkup and compared the answers based on SES. In order to ensure the study is valid and credible, the families are not asked for their name in order to ensure their privacy. The survey is being given at the doctor's office, so the researchers had no contact with the participants where biases could form. As the surveys were returned and collected, the data was analyzed accordingly. Note that this study is a smaller sample of just the 6-month responses. The larger study will include the 6- and 12-month questionnaires.

Questionnaire

Each survey included questions about family demographics including age of the mother, education level, and occupation. In order to identify what socioeconomic class the families fall under we will look at maternal education, dividing the two groups into 12 years or fewer of education and 12 years or more of education. According to McGillion et al. (2017), maternal education was found to be a good predictor of their word comprehension and word production. Thus, we decided to use this as a measure of socioeconomic status because of its high significance when paired with pointing and babbling. Following these demographic questions, the survey will inquire about how often the parents read to their child.

After this section, the interval scale, a typical Likert scale, is defined for the participants followed by the seven survey questions. The seven questions focus on parent's opinion of child-directed speech, reading, and overall word learning. These seven questions are the main focus of this project. In order to analyze the data, the scores of each individual question were examined and compared to identify mother's perceptions throughout different aspects of language development. In addition, the answer will be grouped in to mid- versus low-SES to determine if there are differences due to SES. Descriptive statistics will then illustrate any of the similarities and differences between the two socioeconomic classes. The questionnaire can be found in Appendix A.

Results

Using the maternal education as an indicator for SES, the mothers were separated into completing 12 and fewer years of education ($n=0$) and more than 12 years of education ($n=1$). The mothers with 12 or fewer years of schooling were considered our high school group and the mothers in the more than 12 years of schooling were put into the college group. Using SPSS to

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analyze, a paired samples t-test was performed to compare the high school group with the college group. An alpha of $p=.05$ was used to identify if the answers between the two groups were significant. In Table 1, the means for each group are listed along with the p-value. These inferential statistics show that there is no significant difference between the mothers of the high school group and the college group. Figure 1 is an error box plot comparing each question. A colored circle identifies each question, with the lines showing no overlap to denote no significance in the comparison of the mothers' answers. Every question showed a lot of overlap, indicating that there was no significant difference in their answers.

Questions: Low SES vs. Mid SES	Mean	t	Standard Deviation	p-value
Q1 – Low SES	3.22	-.535	1.302	.599
Q1 – Mid SES	3.50	-.521	1.160	.610
Q2 – Low SES	2.11	1.023	1.054	.318
Q2 – Mid SES	1.64	1.029	1.082	.317
Q3 – Low SES	3.56	.032	1.014	.974
Q3 – Mid SES	3.54	.034	1.330	.973
Q4 – Low SES	4.22	-.291	.972	.774
Q4 – Mid SES	4.36	-.302	1.151	.766
Q5 – Low SES	3.78	.411	1.202	.685
Q5 – Mid SES	3.57	.408	1.158	.689
Q6 – Low SES	2.78	1.412	.972	.173
Q6 – Mid SES	2.14	1.452	1.099	.163
Q7 – Low SES	2.22	.303	1.093	.765
Q7 – Mid SES	2.07	.310	1.207	.760

Table 1 – the Means, t- and p-values for the low socioeconomic status mothers compared to the middle socioeconomic status mothers for each question

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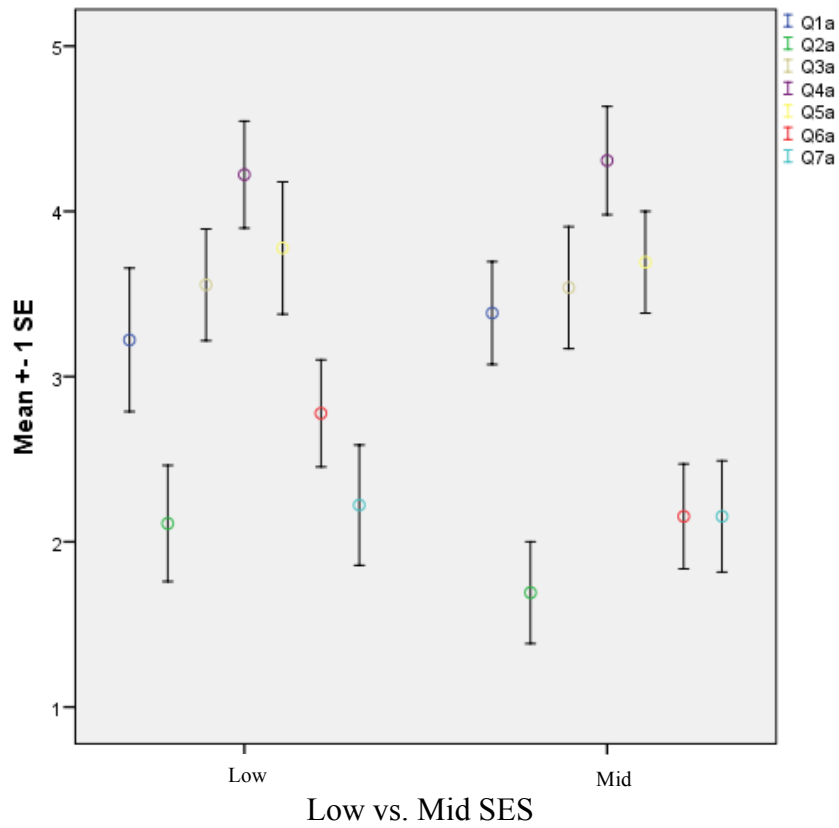


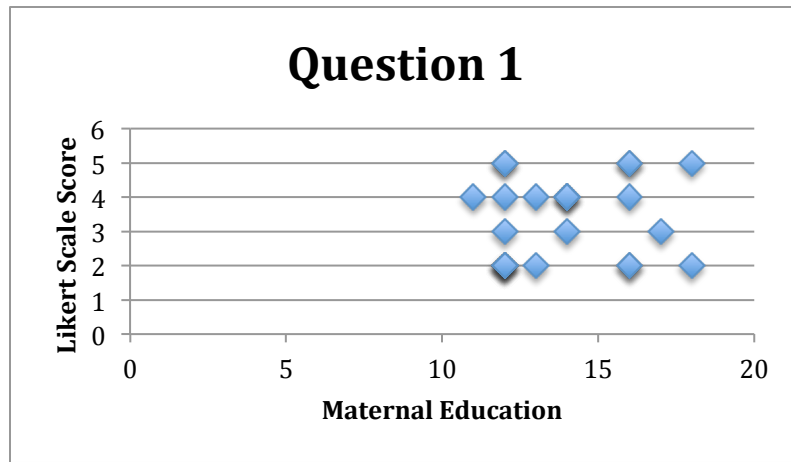
Figure 1: Error box plot

Discussion

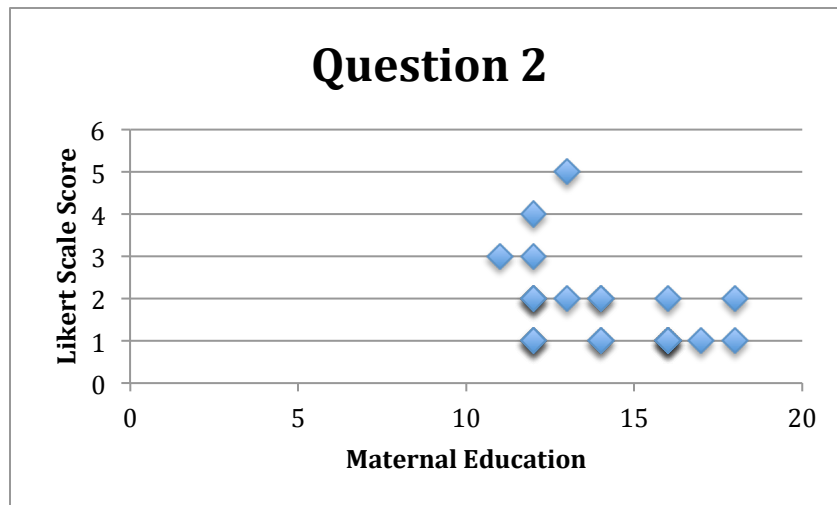
We hypothesized that there would be a difference in perception between the mothers of a lower socioeconomic status compared to the mothers of a middle socioeconomic status. We were expecting to see a significant difference in their responses, with the lower SES mothers showing a difference in the level of knowledge when it came to certain aspects of the infant language development. When running our tests of significance we expected to see some difference between the mothers. The two sampled t-test did not show any significance with all of the p-values well above our alpha of $p=0.05$. As the scatter plots show for each question, there was no relationship between maternal education and each questions answers. As seen below, there were some mothers who fell into the category of low SES, but gave answers that were higher and expected to come from the mid SES mothers. On the other hand, there were mid SES mothers who gave lower answers when we expected them to give higher answers. The plots showed no trends, positively or negatively, once again affirming that there was no significance in the survey data that was collected. Each of the seven questions individually showed some differences when they were broken down and the answers analyzed.

The first question asked the mothers if they thought the “use of baby talk (or talk in a sing song voice) to help your baby learn how to talk”? For this question we expected to see a lot more of the low SES mothers score lower. The majority of our moms fall into the more than 12 years of education, the mid SES category, and yet there is still about half that scored this question lower. With baby talk, we know that a higher pitch is more appealing to the infant therefore we would hope that more of the mothers would have a positive view of baby talk but this was not the case. There were mid SES mothers who were not as receptive to baby talk as we would have expected. The scatter plot below shows the lack of relationship.

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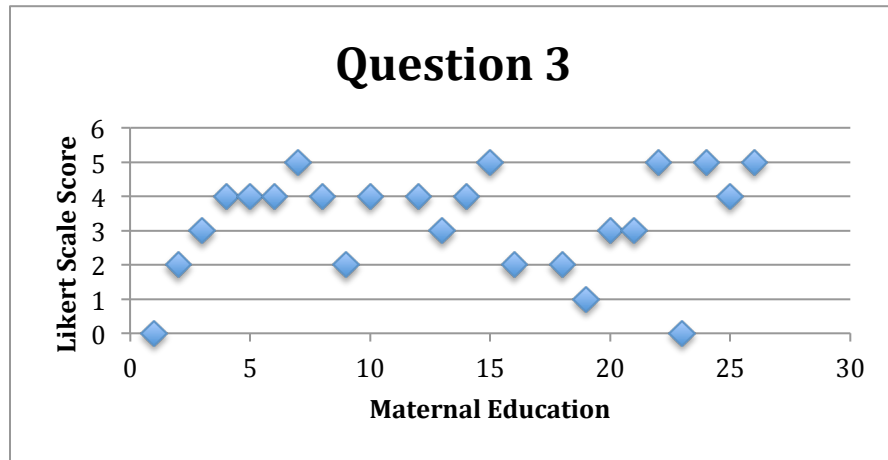
The second question was “you can’t teach children anything new by reading them the same book over and over”. This question showed a lot of similarity in the answers with most of the mothers disagreeing with this statement. Again we expected to be some difference in their answers, with the mid SES mothers disagreeing with this statement the low SES mother’s agreeing. This was not the case as most of the mothers disagreed showing a similar opinion on reading the same books to their children. This scatter plot demonstrates how there was no relationship.



The third question was, “Parents who have trouble reading can help their children learn to read books?” There was a lot of variance across the board in the answers to this question. With some low SES mothers agreeing and others disagreeing as well as a similar pattern with the mid

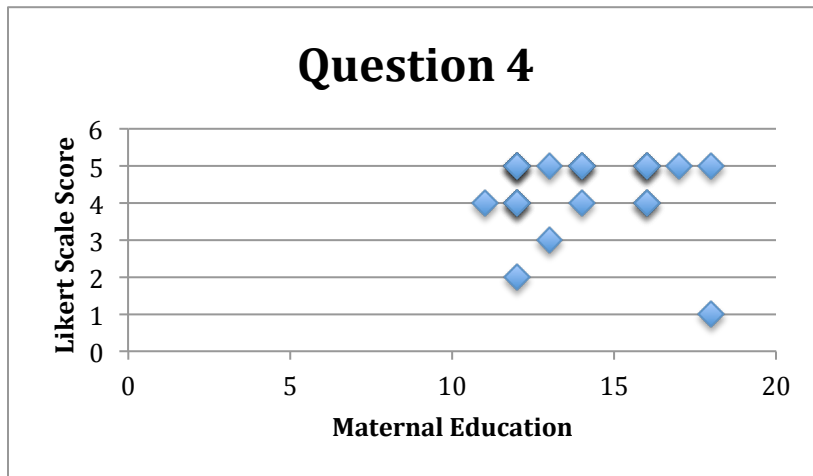
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SES mothers. The scatter plot below shows that there is no relationship between the two variables.



The fourth question was, “Some books should be kept where babies can reach them?”

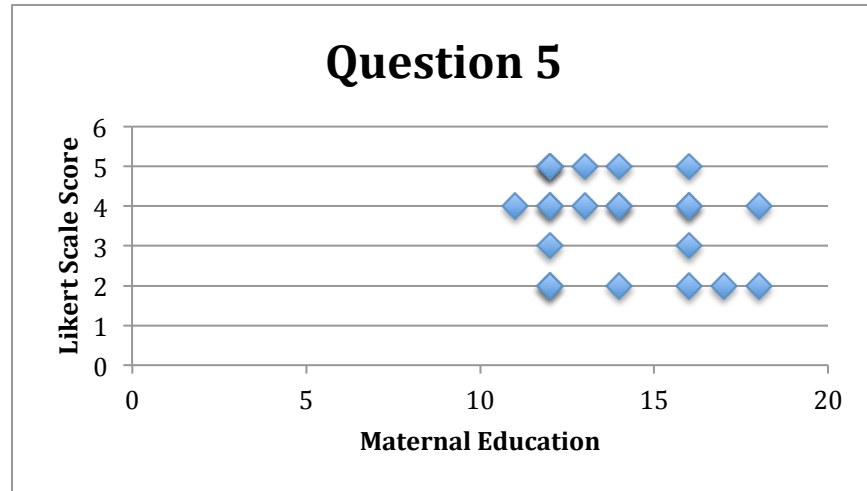
The answers for this question were very consistent in agreeing that books should be kept within reach. There were a few outliers with some of the moms disagreeing, but the consistency in the answers may explain the lack of significant difference for this question. The scatter plot below reflects this information.



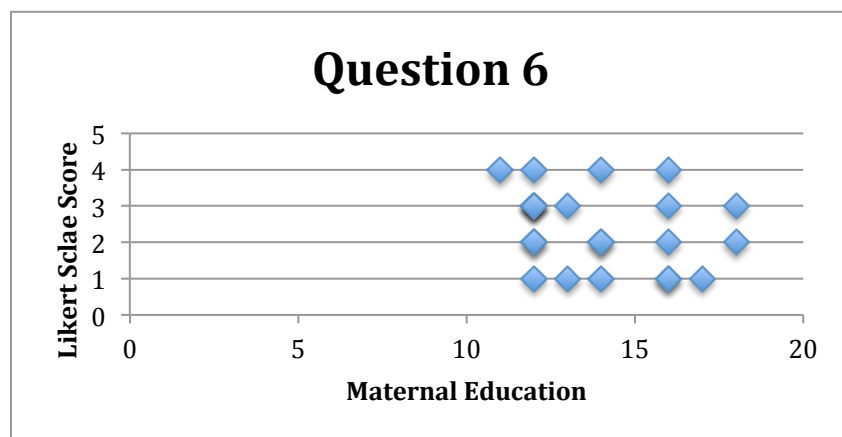
The fifth question focused on the time spent reading to the babies. A lot of books have descriptive pictures that babies can look at so the question asked, “When reading with babies, you should always read all the words on one page before moving on to the next page?” There

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was no pattern within the answers to this question, with a wide range of agrees and disagrees between both sets of mothers. The scatter plot below shows that there is no relationship between the scores and



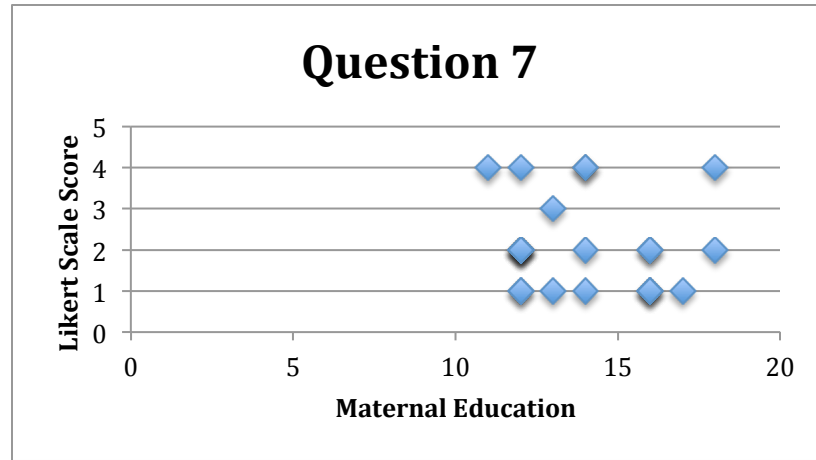
The sixth question focused on the how the baby should be acting while being read to. It asked, “Do you think babies should do their best to listen quietly when you read to them?” Once again we saw consistency across the board with not a lot variance in the answers between the low and mid SES mothers. The scatter plot below shows that there is no relationship.



The seventh and final question focused on screens and how screens can impact language. The question asked, “Do you think the more TV your babies under 2 watch by themselves the more words they learn?” Most of the moms disagreed with the statement, leading us to believe

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that they know that screens do not necessarily help with word growth. What this question does not tell us is whether the mothers actually leave their children in front of the screen alone and for how long. The scatter plot below shows that there is no relationship.



Overall, as evidenced by the scatter plots, there was a lot of variability in the answers of each question between the mothers of differing socioeconomic status. In some instances we expected the low SES mothers to score low, a portion would score high and when expected the mid SES mothers to score high they would score low. These results disproved our hypothesis and showed us that even the mothers with higher education may not be as informed about their baby's language development. If we had more data we might have seen a trend develop, but we were unfortunately limited by a small sample size.

We hoped that these questions would shed some light on these mother's perceptions. With our results showing otherwise, there may be items on the questionnaire that we could alter. Maybe we did not ask the right questions to show a disparity in knowledge. We can also improve on our socioeconomic scale, not only focusing on maternal education, but also focusing on employment to create a more in depth measure of socioeconomic status.

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While this project did not have the outcome that was anticipated, it has given us insight into what future studies may be able to accomplish. One thing we learned is that any intervention should factor in the mother's perception. Having a better idea of how a mother sees her baby developing will allow for interventions to be more successful. Although we did not see any trends form in this study, we were given insight into the mother's perceptions. If a clinician can take into account where there may or may not be a lack of knowledge on how a baby develops language, then the clinician can give more detailed explanations to the parents in hopes of providing more education or bettering the parents previous knowledge.

Appendix A

Prescription for Reading Survey: 6-Month Old

Demographics:

Baby ID Number: _____ **Mother's Age:** _____
No. of Children in the Home: _____ **Education (no. yrs in school):** _____
Birth Order: _____ **Occupation:** _____
Language(s) used in the home: _____

For the person answering questions: You are the baby's mother, father, or _____

Reading:

Do you read to your baby? Yes: _____ No: _____
 How often? Every day: _____ Why not? _____
 3 x a week: _____
 1 x a week: _____
 Sometimes: _____
 For how long? _____

Questionnaire: Think about your children/your baby and how they learn to talk. For the questions below, do you/do you think?

1 2 3 4 5
 Strongly disagree Disagree Unsure Agree Strongly Agree

1. Use baby-talk (or talk in a sing-song voice) to help your baby learn how to talk? _____
2. You can't teach children anything new by reading them the same book over and over? _____
3. Parents who have trouble reading can help their children learn to read books? _____
4. Some books should be kept where babies can reach them? _____
5. When reading with babies, you should always read all the words on one page before moving on to the next page? _____
6. Babies should do their best to listen quietly when you read to them? _____
7. The more TV your babies under 2 watch by themselves the more words they learn? _____

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